

# **SR50/SR100**

# **Sirius Weather Systems**

## Installation Guide

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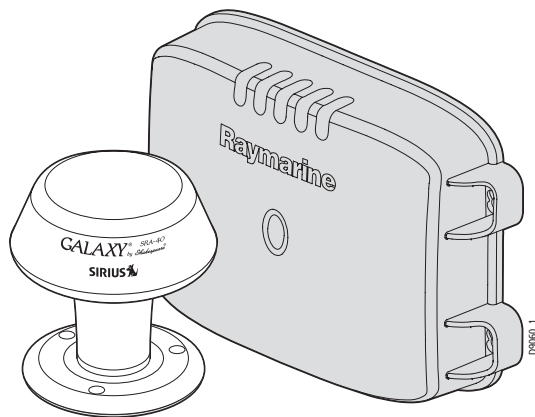
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<b>Important information .....</b>	<b>1</b>	<b>Glossary of weather terms .....</b>	<b>23</b>
Introduction.....	1	<b>Using the Weather application .....</b>	<b>27</b>
Disclaimer .....	1	Introduction.....	27
EMC conformance .....	1	Overview .....	27
Warranty .....	1	Setting up the application .....	27
Handbook information .....	2	The weather display .....	29
<b>Safety notices .....</b>	<b>3</b>	Weather options.....	30
<b>Installation .....</b>	<b>5</b>	Animating weather graphics .....	36
What's in the box? .....	6	Troubleshooting the weather application .....	40
What tools do I need.....	6		
Cable runs .....	8		
Installing the system .....	9		
<b>System connections .....</b>	<b>14</b>		
System activation .....	18		
<b>Upgrading weather receiver software .....</b>	<b>19</b>		
<b>Maintenance and troubleshooting .....</b>	<b>20</b>		
Introduction.....	20		
Maintenance .....	20		
Troubleshooting .....	20		
Accessories.....	21		

# Important information

## Introduction



This guide contains an explanation of how to install, commission and maintain your Raymarine SR50/SR100 Sirius weather System for use with your Raymarine display.

### Intended use

This product is a weather information system consisting of a receiver and antenna. The intended application is as one component of a navigation system for leisure marine boats and workboats not covered by IMO/SOLAS carriage requirements.

## Disclaimer

All information presented by the Sirius weather service is advisory only. You acknowledge the risk of incomplete and erroneous information and assume complete responsibility and risks associated with this device, and accordingly release Raymarine, Sirius Satellite Radio Inc., Navcast Inc, and WSI Corporation from any and all claims arising from the use of this service. By using this service, you acknowledge and agree that you have read the terms of the subscription agreement for this service and agree to all of the terms contained therein. If you do not have the subscription agreement, you may view a copy at [www.sirius.com/marineweatheragreement](http://www.sirius.com/marineweatheragreement) or call **1-800-869-5480** for a copy to be sent to you.

## EMC conformance

All Raymarine equipment and accessories are designed to the best industry standards for use in the recreational marine environment. The design and manufacture of Raymarine equipment and accessories conforms to the appropriate Electromagnetic Compatibility (EMC) standards, but correct installation is required to ensure that performance is not compromised. For full details and installation guidelines refer to [www.raymarine.com](http://www.raymarine.com)

## Warranty

To register your new Raymarine product, please take a few minutes to fill out the warranty card. It is important that you complete the owner information and return the card to us to receive full warranty benefits. Your product can also be registered via our website [www.raymarine.com](http://www.raymarine.com)

## Handbook information

To the best of our knowledge, the information contained in this handbook was correct as it went to press. Raymarine cannot accept any liability for any inaccuracies or omissions it may contain.

In addition, our policy of continuous product improvement may change specifications without notice. As a result, Raymarine cannot accept liability for any differences between the product and the handbook.

## Handbook conventions

Throughout this handbook, the dedicated (labelled) keys are shown in bold capitals, e.g. **MENU**. The soft key functions are shown in italics, e.g. *SAVE* *ALL*.

## Safety notices



### WARNING

#### Navigation aid

When this product is used within a navigation system, it is only an aid to navigation. It's accuracy can be affected by many factors, including equipment failure or defects, environmental conditions and improper use or handling. It is the user's responsibility to exercise common prudence and navigational judgements. This product should not be relied upon as a substitute for such prudence and judgement. Always maintain a permanent watch so that you can respond to situations as they develop.



### WARNING

#### Product installation

This equipment must be installed and operated in accordance with the Raymarine instructions provided within this guide. Failure to do so could result in poor product performance, personal injury, and/or damage to your boat.



### WARNING

#### Electrical safety

Make sure the power supply is switched OFF before you make any electrical connections.



### CAUTION

#### Cables

**DO NOT** cut cables or remove connectors as this will severely reduce system performance.

If a longer cable is required you will need to purchase a replacement cable from a suitable dealer.

If a shorter cable is required, coil excess cable neatly and secure out of the way.



### CAUTION

#### Antenna cable

Cutting or splicing the antenna cable will result in severely reduced system performance.

**CAUTION****In-line fuse**

**If you do not have a breaker in the power circuit, an in-line 2A slow blow fuse should be fitted to the positive (red) lead of the power cable.**

**CAUTION****Power supply**

**Always turn your weather system OFF before carrying out routine maintenance.**

**CAUTION****Grounding**

**This system is not intended for use on 'positive' ground boats. The power cable earth screen must be connected to the boat's RF ground system.**

**CAUTION****Software upgrade**

**While this software upgrade is not intended to erase data stored in your displays internal memory, it is strongly recommended that you perform a backup before upgrading software should anything interrupt the upgrade process.**

# Installation

## EMC Installation Guidelines

Raymarine equipment and accessories are designed to the best industry standards for use in the recreational marine environment.

Their design and manufacture conforms to the appropriate Electromagnetic Compatibility (EMC) regulations, but correct installation is required to ensure that performance is not compromised.

The guidelines given here describe the conditions for optimum EMC performance, but it is recognized that it may not be possible to meet all of these conditions in all situations. To ensure the best possible conditions for EMC performance within the constraints imposed by any location, always ensure the maximum separation possible between different items of electrical equipment.

For **optimum** EMC performance, it is recommended that **wherever possible**:

- Raymarine equipment and the cables connected to it are:
  - At least 3 ft. (1 m) from any equipment transmitting or cables carrying radio signals e.g. VHF radios, cables and antennas. In the case of SSB radios, the distance should be increased to 7 ft. (2 m).
  - More than 7 ft. (2 m) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.
- The product is supplied from a separate battery from that used for engine start. Power supply voltages below the minimum specified for a product, and starter motor transients, can cause the product to reset. This will not damage the product, but may cause the loss of some information and may change the operating mode.

- Raymarine specified cables are used. Cutting and rejoining these cables can compromise EMC performance and must be avoided unless doing so is detailed in the installation manual.

## Suppression Ferrites

If a supplied cable is fitted with a suppression ferrite, the ferrite must not be removed, unless it is necessary to facilitate installation. Any ferrite thus removed must be replaced in the original position immediately installation is complete.

If additional suppression ferrites are required, use only ferrites supplied by Raymarine.

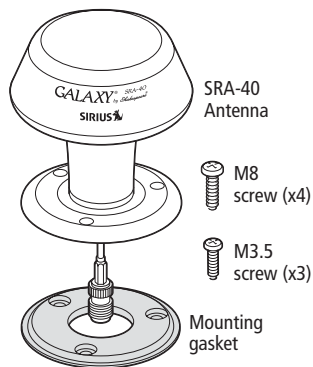
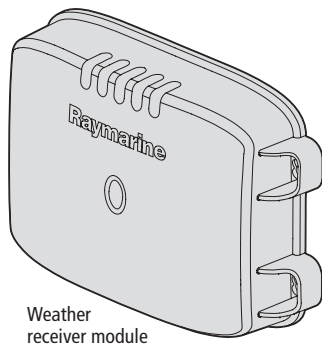
## Connections to Other Equipment

If Raymarine equipment is to be connected to other equipment using a cable not supplied by Raymarine, a Raymarine suppression ferrite **MUST** always be attached to the cable near the Raymarine unit.

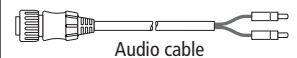
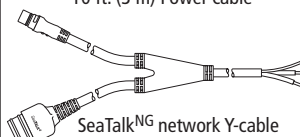
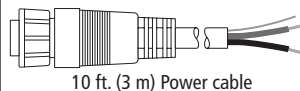
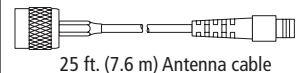


## What's in the box?

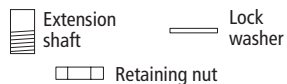
### SR50 and SR100



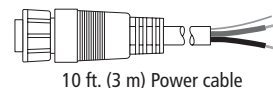
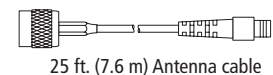
### SR50



### Surface mount kit

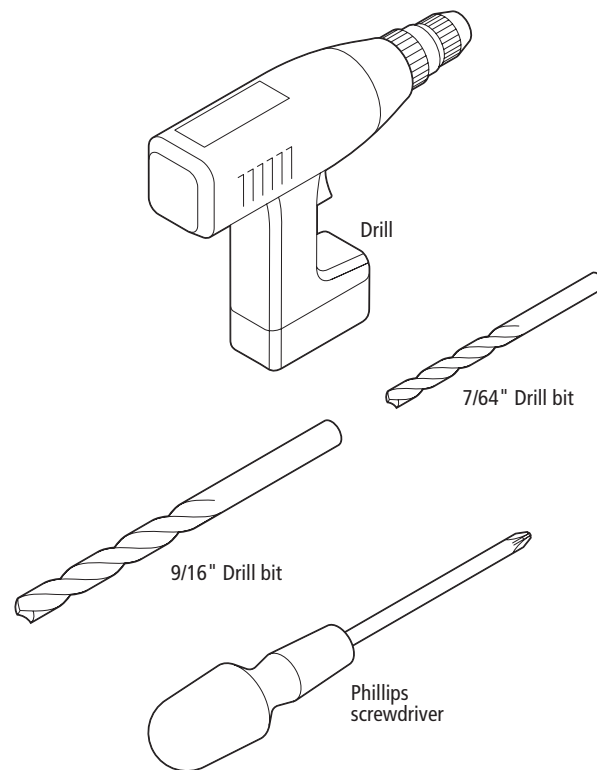


### SR100



D9061-1

## What tools do I need



D9062-1

## Planning the installation

When planning the installation and choosing locations for the antenna and receiver, consider the following points:

### Receiver

	<p>Protect the receiver from extremes of temperature.</p>
	<p>DO NOT place the receiver near an engine, or where fuel vapor could be present.</p>
	<p>DO NOT install the receiver where it is likely to get wet or where it can be splashed with water.</p>
	<p>DO NOT install the receiver where it can be kicked or trodden on.</p>

D9063-1

You should also choose the installation site so that a power cable can be easily removed.

### Antenna

	<p>Ensure the antenna is installed where it has clear view of the sky.</p>
	<p>Ensure the antenna is installed on a flat horizontal surface.</p>
	<p>Do not install the antenna in the path of radar beam.</p>
	<p>Do not install the antenna where it can be kicked or trodden on.</p>

D9064-1

You should also ensure that the installation site has easy access from below in an area clear of cables and dangers and other obstruction.

## Cable runs



### CAUTION

#### Cables

**DO NOT cut cables or remove connectors as this will severely reduce system performance.**

**If a longer cable is required you will need to purchase a replacement cable from a suitable dealer.**

**If a shorter cable is required, bundle excess cable neatly and secure out of the way ensuring not to exceed the minimum bend radius of 25mm.**

Consider the following points before installing the system cables:

- You will need to connect the antenna, ethernet and power cables to the receiver.
- All cables should be adequately clamped and protected from physical damage and exposure to heat.
- Avoid running cables through bilges or doorways, or close to moving or hot objects.

**Note:** *Acute bends must be avoided minimum bend radius 25mm.*

- Where a cable passes through an exposed bulkhead or deckhead, a watertight gland or swan neck tube should be used.
- DO NOT cut the cables or remove the connectors.
- DO NOT pull cables through bulkheads using a cord attached to the connector. This could damage the connector.

- Secure cables in place using tie-wraps or lacing twine. Bundling cables in a way not to produce sharp bends as this can adversely effect the performance of the SR50/SR100

You will need to run the following cables:

- Power cable.
- SeaTalk<sup>hs</sup> network cable (SR100 only)
- SeaTalk<sup>NG</sup> network cable (SR50 only)
- Antenna cable.
- Audio Cable (SR50 only)

### Power cable

A 10 ft. (3m) power cable is supplied. This cable has a connector plug for connecting to the weather receiver at one end and three wires at the other for connecting to your boats power supply. This cable may be extended to a distance of 60 ft. (20m) using a suitable wire, gauge AWG 12 or greater. For full details of power connections refer to "Power cable" on page 15.

### SeaTalk<sup>hs</sup> network cable (SR100 only)

A 4.9 ft. (1.5m) network cable is supplied. This cable should be used to connect your SR100 weather receiver to either a SeaTalk<sup>hs</sup> Network Switch or cross over coupler to connect to your E-Series display or G-Series processor. If a longer cable is required it should be purchased from your local Raymarine dealer. For full details of available cable lengths refer to "SeaTalkhs (SR100 Specific)" on page 16.

### Seataalk<sup>NG</sup> network cable(SR50 only)

A 10ft (3M) Y-cable is supplied. This cable makes up a complete terminated Seataalk<sup>NG</sup> network and power solution. This cable should be used to connect your SR50 weather receiver to your C-series display and also supply power to the SeaTalk<sup>NG</sup> network. If a longer cable is required it should be purchased from your local Raymarine dealer. The cable supplied

with the product is used only if the case is that there are no other existing SeaTalk<sup>NG</sup>, SeaTalk2 or NMEA2000 products being used in the system, in this case separate accessory cables need to be purchased.

### Audio cable (SR50 only)

A 5ft (1.5m) cable is supplied. The audio cable should be used to connect your SR50 weather receiver to your external audio device.

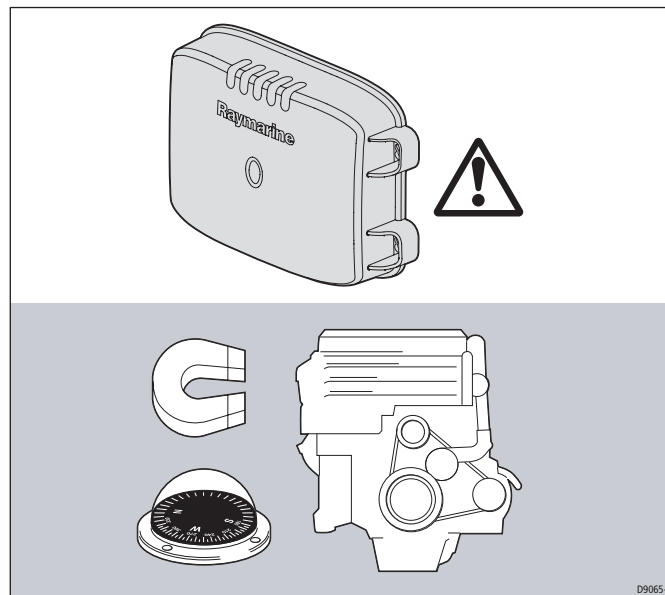
### Antenna cable

An antenna cable of 25 ft. (7.5m) is supplied. This RF coax cable should be used to connect the antenna to the weather receiver. If a longer cable is required it should be purchased from your Shakespeare dealer. For full details of available cable lengths refer to "Accessories" on page 21.

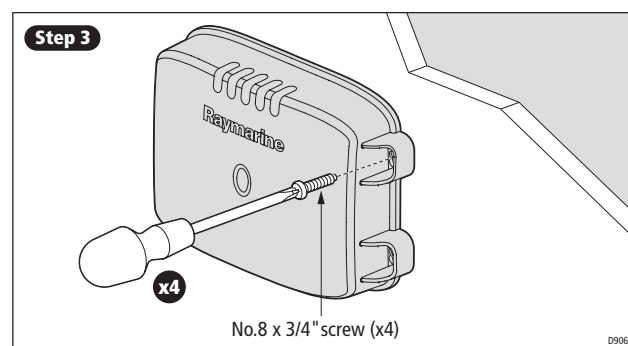
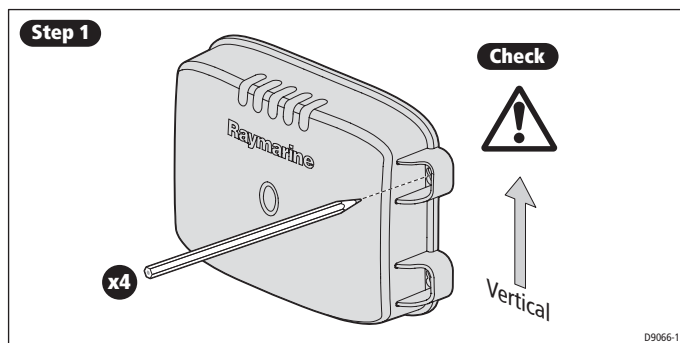
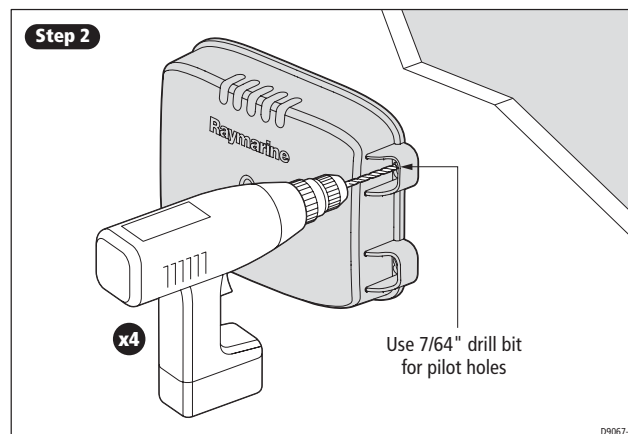
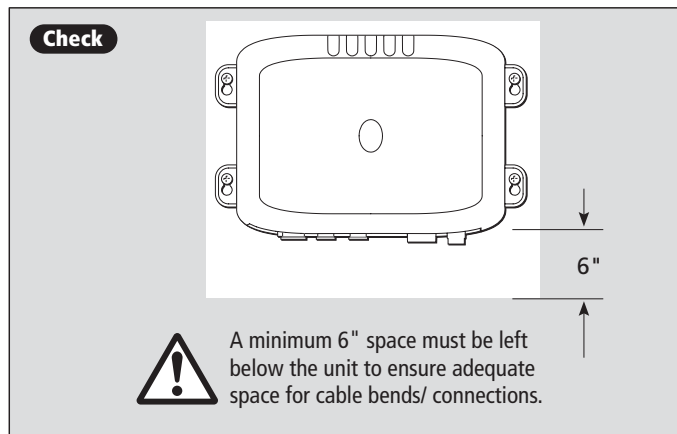
## Installing the system

The following section gives details of how to install your SR50/SR100 Sirius weather receiver and antenna.

### Receiver



The receiver should be installed a minimum of 3 ft. (1m) away from an engine, compass or any magnetic device.



## Antenna install Pedestal mounting



### CAUTION

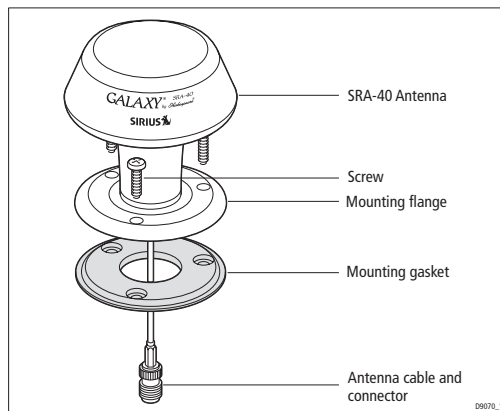
#### Antenna cable

**Cutting or splicing the antenna cable will result in severely reduced system performance.**

**It is essential that the antenna TNC cable connector and the antenna base are isolated from the ships ground.**

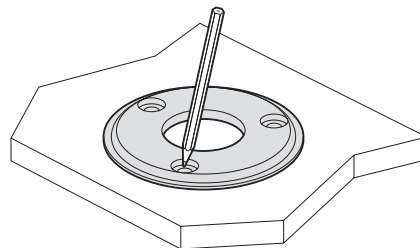
**Note:** If you are attaching the antenna directly to a flat surface, *the cable with its connector attached can be routed through a 9/16" hole drilled in the mounting surface as described below or passed through the mounting flange.*

The antenna consists of the following components:



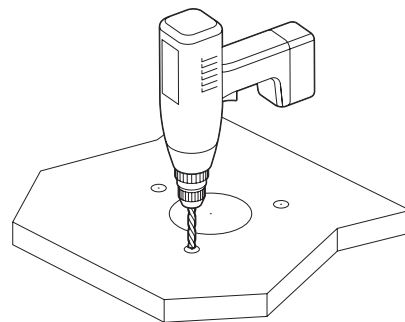
When selecting the antenna installation site, check that the area below the site has easy access and is clear of cables and other obstructions.

### Step 1

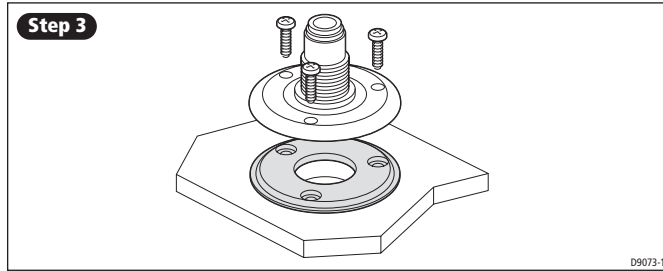


Using the gasket as a template mark the center hole and 3 fixing holes.

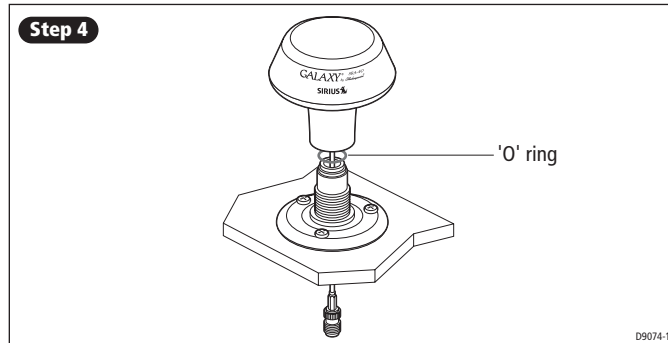
### Step 2



Use a 9/16" drill bit to drill the center hole and a 7/64" drill bit to make pilot holes for the fixing screws.



Fix the mounting gasket and flange into position using the supplied screws.



Thread the cable and connector through the mounting flange and gasket. Attach the antenna to the mounting flange, making sure the 'O' ring is in position.

## Surface mounting

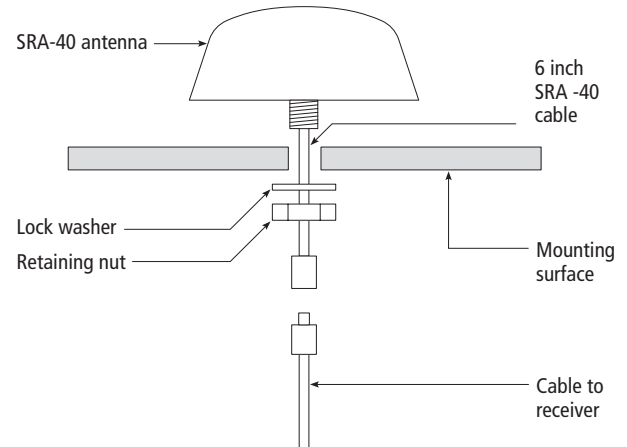
If you are attaching the antenna directly to a non-metallic flat surface, the cable with its connector attached can be routed through a 9/16" hole drilled in the mounting surface. It is recommended to seal the hole drilled to prevent water ingress with a suitable sealant.

### Surfaces up to 1/4" (6mm) thick

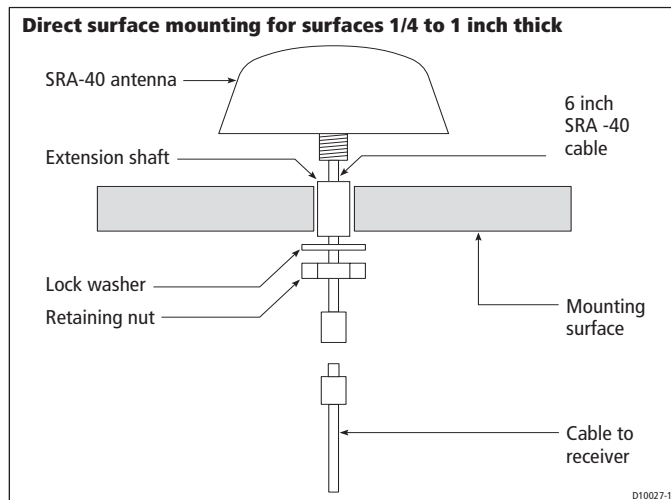
**Do not cut the cable and do not remove the connector.**

**Step 1:** Drill a 9/16" mounting hole. For mounting surfaces from 1/4" to 1" thick, use the extension shaft (supplied). Route the 6" antenna lead with TNC female connector through the center of the extension shaft. Thread the Extension Shaft onto the existing antenna shaft and tighten.

### Direct surface mounting for surfaces up to 1/4 inch thick



**Step 2:** Pass the connector, cable, and shaft (if used) from the SRA-40 through the hole. Surfaces 1/4" (6mm) to 1" (25.4mm) thick



**Note:** A standard 1" x 14TPI generic rail mount is also available. Refer to individual manufacturers installation guides for fitting instructions.

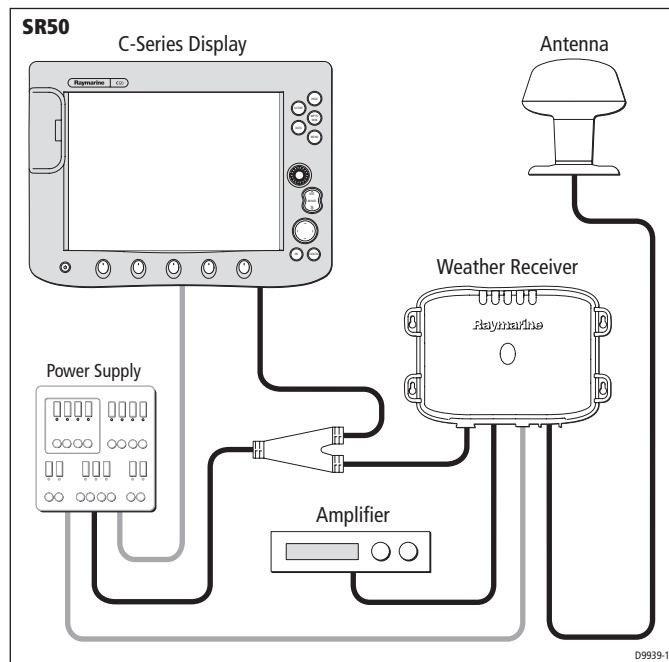


## System connections

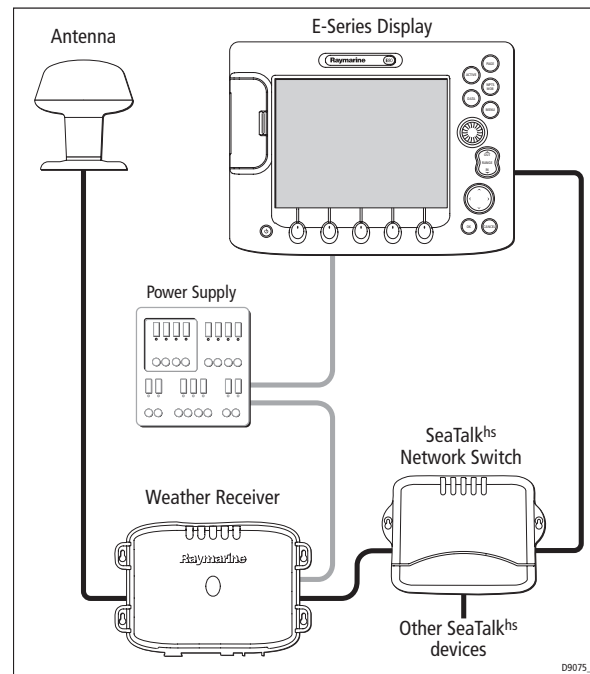
This section deals with connecting your SR50/SR100 Sirius weather system after installation.

Typical Sirius weather systems are shown in the following illustrations.

### SR50



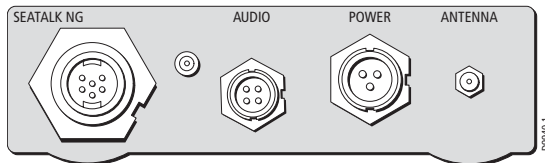
### SR100



## Connector panel

The connector panel of the receiver provides the following connection sockets:

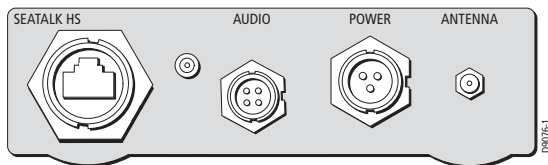
### SR50 system



- **Power** - for connecting the system to your boat's DC power supply.
- **SeaTalk<sup>NG</sup> Network Y-cable** - for connecting the receiver to your display (also required to be connected to power supply to provide power to the SeaTalk<sup>NG</sup> bus).
- **Antenna** - for connecting the antenna to the system.
- **Audio** - for connecting to an audio output device i.e. Power Amplifier.

The connector panel also contains a Light Emitting Diode (LED) to indicate system status for diagnostic purposes. For full details of the status LED refer to "Status LED" on page 20.

### SR100 system



- **Power** - for connecting the system to your boat's DC power supply.
- **SeaTalk<sup>HS</sup>** - for connecting the receiver to your boat's SeaTalk<sup>HS</sup> Network.
- **Antenna** - for connecting the antenna to the system.
- **Audio** - not used.

The connector panel also contains a light emitting diode (LED) to indicate system status for diagnostic purposes. For full details of the status LED refer to "Status LED" on page 20

### Power cable



**CAUTION**

#### In-line fuse

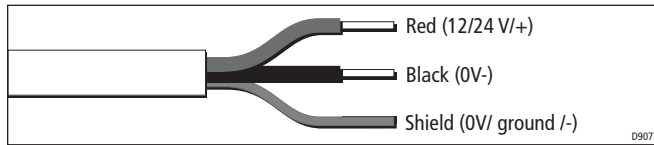
**If you do not have a breaker in the power circuit, an in-line 2A slow blow fuse should be fitted to the positive (red) lead of the power cable.**

Sirius weather systems are intended for use on your boats' DC power system. With an operating range of 9 V to 32 V.

There is no power switch on the SR50/SR100 Sirius weather receiver, it automatically turns on when the system is powered.

The power connection for your system should be made at either the output of the battery isolator switch, or at a DC power distribution panel. The power must be fed directly to the system through its own dedicated cable system and **MUST** be protected by a thermal circuit breaker or fuse, installed close to the power connection.

A 10 ft. (3 m) cable is supplied with your system for connecting to the boat's DC power supply as follows:



### Extending the power cable

The power cable may be extended up to a maximum length of 60 ft. (20m) using a suitable AWG 12 multi-stranded cable.

**Note:** *If the power connections are accidentally reversed the system will not work. Raymarine recommends using a multi-meter to ensure that the power lead is connected with the correct polarity.*

### Grounding the system



## CAUTION

#### Grounding

**This system is not intended for use on 'positive' ground boats. The power cable earth screen must be connected to the boat's RF ground system.**

Your boat's power system should be either:

- Negative grounded, with the negative battery terminal connected to the boat's ground, or
- Floating with neither battery terminal connected to the boat's ground.

It is important that an effective RF ground is connected to your weather system.

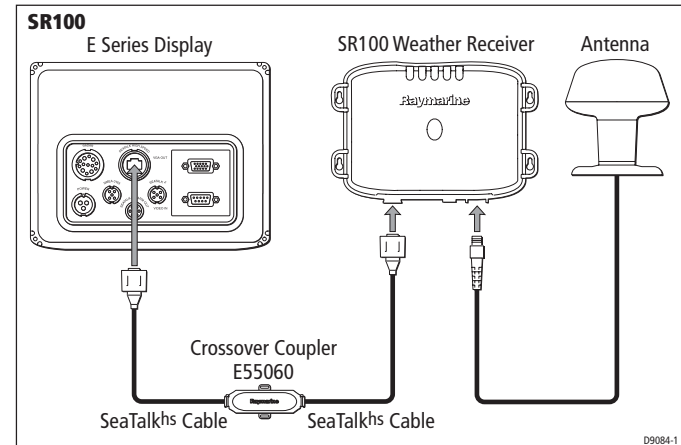
You must ground your weather system by connecting the Shield wire (screen) of the power cable to the nearest ground point on your boat's RF system.

If you need to extend the wire, the extension wire should be an 8 mm braid or AWG 10 multi-strand cable.

If your boat does not have an RF system, connect the Shield wire (Screen) to the negative battery terminal.

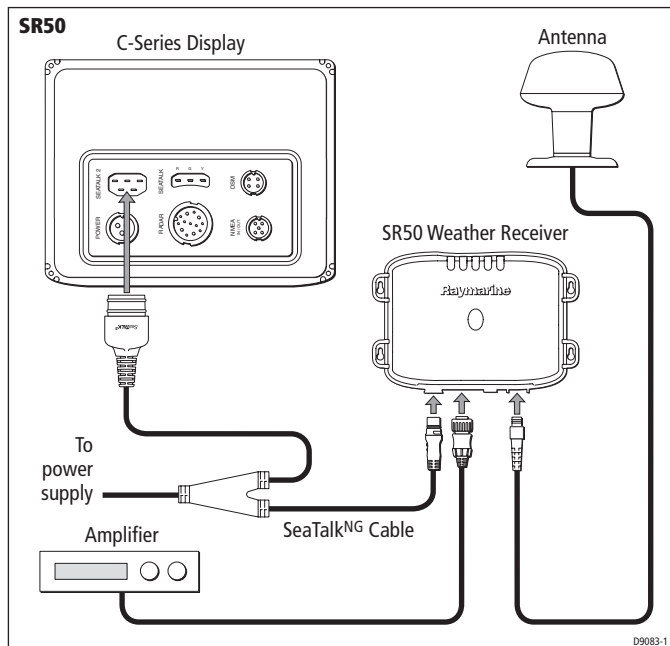
### SeaTalk<sup>hs</sup> (SR100 Specific)

The supplied SeaTalk<sup>hs</sup> high speed network cable should be connected from the receiver to a SeaTalk<sup>hs</sup> switch or a cross-over coupler (as shown) to enable connection to your Raymarine display.



## SeaTalk<sup>NG</sup> Network Y-cable (SR50 Specific)

The supplied SeaTalk<sup>NG</sup> network Y-cable should be connected from the receiver to the relevant port at the rear of your Raymarine C-Series display. It is also to provide the SeaTalk<sup>NG</sup> network with power.



## Antenna cable

The antenna cable should be used to connect the antenna to the weather receiver. If a cable length greater than the 25 ft. (7.5 m) supplied is required a substitute cable of suitable length should be purchased from your Shakespeare dealer ensuring that a maximum length of 90 ft. (27.4 m) is not exceeded. If this maximum is exceeded then this will cause the unit to operate either poorly or not at all.



## CAUTION

### Antenna cable

**Cutting or splicing the antenna cable will result in severely reduced system performance.**

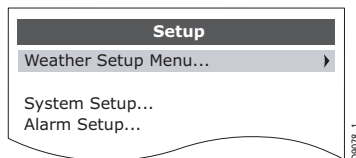
## System activation

With your Sirius weather system correctly installed, this section details how to activate Sirius weather application on your display.

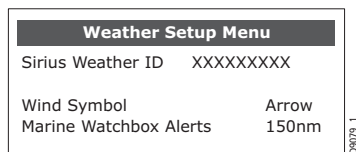
### Activation

With the weather system and your display powered ON:

1. Open a weather application page on your display and make it active.  
For full details of how to do this, refer to the relevant display handbook.
2. Press the **MENU** key. The Setup dialog box appears.



3. Use the trackpad to highlight *Weather Setup Menu*.
4. Use the trackpad to enter *Weather Setup Menu*.



Your Sirius Weather ID number is displayed on the first line of the Weather Setup Menu.

5. Make a note of your Sirius Weather ID number.

6. Contact Sirius Weather at **1-800-869-5480** to activate your system.

## Upgrading weather receiver software

The following section gives details of how to carry out an upgrade of your SR50/SR100 weather receiver software.

**Note:** *Upgrades made to the SR50 can take approximately 20 Mins.*



### CRITICAL!

**The SR50/SR100 weather receiver unit MUST remain powered on for ten minutes after the upgrade is complete. Failure to do so could result in incomplete processing of the upgrade and subsequently the SR50/SR100 will not properly reboot. The unit would then have to be returned to Raymarine for re-programming.**

Before upgrading your weather receiver software, 2 pieces of hardware are necessary to complete this process:

- A blank CompactFlash (CF) memory cartridge of 8 Megabytes capacity or larger. Raymarine recommends using SanDisk brand CF cards.
- A CF reader/writer device for your PC or Mac. This device will be used to copy the files downloaded from Raymarine.com to the CF card. The CF reader/writer can be an external device (e.g. connected by USB to your computer), or can be internal/built in.

### Downloading the software upgrade

1. Point your web browser to **<http://www.raymarine.com>**
2. Navigate to *Customer support* then *Software update* pages.
3. Download the latest version for your SR50/SR100 weather receiver.
4. Follow the on-screen instructions.

### Uploading software to your weather receiver

Ensure your SR50/SR100 weather receiver and display are powered **OFF**:

1. Power up your display and SR50/SR100 unit. Wait until the Sirius disclaimer is displayed then power down your **display only**. The SR50/SR100 should remain powered with the Status LED flashing amber.
2. Insert a CF card containing the software upgrade into the display. Power up your display, you will see the Upgrade Utility screen. Ensure the software upgrade version is highlighted in the left hand column, if not use the trackpad to do so.
3. Press the *Upgrade Remote Unit* soft key.
4. Press the *Upgrade Remote Unit* on "Ethernet" soft key (SR100) or "ST2" (SR50). The Upgrade progress bar appears.

The progress bar will begin updating. If they do not begin updating within 30 seconds, check:

- i. that the correct software revision was selected.
  - ii. that the SR50/SR100 weather receiver is powered **ON** and status LED is flashing as per item 2 above.
  - iii. that the Display/weather receiver data cable connection is intact.
5. When the update process is complete, remove the CF card from the card reader slot.
  6. Press the *REBOOT* soft key. Your display will restart automatically.

**Read Critical Warning!** Your SR50/SR100 weather receiver system and display are now ready for normal operation. For full details of how to operate your SR50/SR100 Weather Application refer to the relevant display manual. A copy of this manual is available from the relevant product pages at **[www.raymarine.com](http://www.raymarine.com)**

# Maintenance and troubleshooting

## Introduction

This section provides information on routine maintenance and troubleshooting that can be carried out by the user.

## Maintenance

### CAUTION: Power supply

**Always turn your weather system OFF before carrying out routine maintenance.**

Your SR50/SR100 Sirius weather unit is a sealed unit! **DO NOT** remove the cover of the receiver. Adjustments require specialized service procedures and tools only available to qualified service technicians. There are no user serviceable parts or adjustments.

## Routine checks

Routine checks are limited to the following periodical checks:

- Examine the cables for signs of damage, such as chafing, cuts, or nicks.
- Check that the cable connectors are firmly attached and dust caps are fitted to any connection not in use.

## Cleaning

If you find it necessary to clean the unit, follow these basic procedures:

- Wipe the module clean with a damp cloth.
- If necessary, use iso-propyl alcohol (IPA) or a mild detergent solution to remove any grease marks.

## Troubleshooting

Your Raymarine product, prior to packing and shipping, has been subjected to comprehensive test and quality assurance programs. However, if the unit should develop a fault, please refer to the following section to identify the most likely cause and the corrective action required to restore normal operation. If you still have a problem after referring to the following section, contact your local dealer, national distributor or Raymarine Technical Services Department for further advice.

## Status LED

The LED on the connector panel provides valuable information on the status of your Sirius Weather system.

The LED blinks green while the system is operating normally. If the unit detects a problem, the LED blinks amber to indicate a warning or red to indicate an error. The pattern of the LED blink is a code representing the nature of the problem. For multiple warnings/errors the codes are given in sequence with a 1.5 second pause between the indications.

The following table shows the LED status codes and their meanings:

LED color	LED pattern	Description
Green	Blinking	Normal operation
Amber	1sec ON, 2 sec. OFF	Antenna disconnected
Amber	1 sec. ON, 1 sec. OFF, 1 sec. ON, 2 sec. OFF	SeaTalk <sup>hs</sup> cable disconnected

LED color	LED pattern	Description
Red	Blinking	Internal fault
Amber	Solid	1st Minute of power up(SR50)

It is normal during the first minute of initial power that the receiver status LED shows no activity and remains off. During the second minute the status LED will start to flash the amber or red fault strings. Typically, during normal operation, a flashing green LED will occur within 90 seconds of initial power. If there is no LED indication of any sort displayed after 90 seconds you should check the in-line fuse or circuit breaker.

A blinking **Red** LED indicates an internal fault condition. If this condition persists contact Raymarine Technical Services.

## Accessories

The following accessories are available from your local dealer, national distributor or Raymarine Customer Service Department:

Part No.	SR100 Cables
E55049	1.5 m SeaTalk <sup>hs</sup> Network cable
E55050	5 m SeaTalk <sup>hs</sup> Network cable

Part No.	SR100 Cables
E55051	10 m SeaTalk <sup>hs</sup> Network cable
E55052	20 m SeaTalk <sup>hs</sup> Network cable

Part No.	SR50 Cables
R69053	3 m for SeaTalk <sup>NG</sup> Network Y-cable (Network and Power)
R08265	1.5m Audio cable

The following accessories are available from your local Shakespeare dealer:

Part No	Antenna Accessories
SRS-35	35 ft. antenna cable and connectors
SRS-50	50 ft. antenna cable and connectors
SRS-90	90 ft. antenna cable and connectors (Maximum recommended).
SRA-40	Sirius Antenna



## Technical support

**[www.raymarine.com](http://www.raymarine.com)**

### United States

#### **Raymarine Technical Support**

1- 603 - 881- 5200

#### **Product Repair and Service**

Raymarine Product Repair Center

21 Manchester Street,

Merrimack, NH 03054 - 4801

1- 603 - 881- 5200

Opening hours:

Monday through Friday 0815 - 1700

Eastern Standard or Eastern Daylight  
Savings Time.

#### **Help us to help you**

When requesting service, please quote the following product information:

Equipment type ● Model number ● Serial number

## Glossary of weather terms

Term	Definition
Cold front	The boundary between two different air masses where cold air pushes warm air out of the way and brings colder weather.
Cyclone	A large area of low atmospheric pressure, characterized by inward-spiralling winds. A "low" - also called a "depression". Also the name used for a hurricane in the Indian Ocean and Western Pacific.
Depression	An area of low pressure. Also called a cyclone.
Dry line	A region where there is a strong gradient in dew point temperatures. It is often found in a region where strong thunderstorms develop.
Forecast	Something that tells us what the weather is probably going to be like.
Front	The boundary between two masses of air with different temperatures (i.e.: a mass of cold air and a mass of warm air).
High	Also known as an 'anticyclone' - an area of high atmospheric pressure with a system of winds rotating outwards. This usually means dry weather. It is the opposite of a 'low'.
High Pressure	A mass of air that presses down strongly on the surface of the Earth because it is being cooled and is therefore more dense.

Term	Definition
Hurricane	<p data-bbox="339 188 1517 258">A violent, spiralling storm that forms over the Atlantic Ocean, with winds over 120 kph. Such storms usually have a lifespan of several days. Also known as a typhoon or tropical cyclone. There are 5 levels of hurricane:</p> <p data-bbox="339 281 1517 318"><b>Category 1</b></p> <p data-bbox="339 318 1517 404">Winds 74-95 mph (64-82 kt or 119-153 km/hr). Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage.</p> <p data-bbox="339 426 1517 463"><b>Category 2</b></p> <p data-bbox="339 463 1517 572">Winds 96-110 mph (83-95 kt or 154-177 km/hr). Storm surge generally 6-8 feet above normal. Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane centre Small craft in unprotected anchorages break moorings.</p> <p data-bbox="339 594 1517 631"><b>Category 3</b></p> <p data-bbox="339 631 1517 829">Winds 111-130 mph (96-113 kt or 178-209 km/hr). Storm surge generally 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the centre of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with several blocks of the shoreline may be required.</p> <p data-bbox="339 852 1517 889"><b>Category 4</b></p> <p data-bbox="339 889 1517 1037">Winds 131-155 mph (114-135 kt or 210-249 km/hr). Storm surge generally 13-18 ft above normal. More extensive curtainwall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the centre of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km).</p>

Term	Definition
	<b>Category 5</b> Winds greater than 155 mph (135 kt or 249 km/hr). Storm surge generally greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the centre of the hurricane. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required.
Isobar	A line on a weather map linking areas with equal air pressure.
Lightning	Discharge of static electricity in the atmosphere, usually between the ground and a storm cloud.
Low	Also called a 'depression' - this region of low pressure can mean wet weather.
Low Pressure	A mass of air that presses down only weakly on the surface of the Earth's surface as it is warmed and it therefore less dense.
Millibar	A unit used to measure atmospheric pressure.
Occluded Front	An area where warm air is pushed upwards as a cold front overtakes a warm front and pushes underneath it.
Precipitation	Moisture that is released from the atmosphere as rain, drizzle, hail, sleet or snow, as well as dew and fog.
Pressure Centre	A region of high or low pressure.

<b>Term</b>	<b>Definition</b>
Squall line	A non-frontal band, or line, of thunderstorms.
Super typhoon	A typhoon that reaches maximum sustained 1-minute surface winds of at least 65 m/s (130 kt, 150 mph). This is the equivalent of a strong category 4 or 5 hurricane in the Atlantic basin or a category 5 severe tropical cyclone in the Australian basin.
Tornado	A funnel-shaped whirlwind which extends to the ground from storm clouds.
Tropical cyclone	A low pressure system that generally forms in the tropics. The cyclone is accompanied by thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface.
Tropical depression	An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds of 38 mph (33 kt) or less.
Tropical storm	An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph (34-63 kt).
Tropics	An area on the Earth's surface that lies between 30° north and 30° south of the equator.
Trough	An elongated area of relatively low atmospheric pressure, usually extending from the centre of a low pressure region.
Typhoon	The name for a tropical storm originating in the Pacific Ocean, usually the China Sea. They are basically the same as the hurricanes of the Atlantic Ocean and the cyclones of the Bay of Bengal.
Wave cyclone	A storm or low-pressure centre that moves along a front.

# Using the Weather application

## Introduction

This chapter is intended to give an overview of how to operate the Weather application of your C or E-Series display and is applicable to systems being operated in US waters only.

**Note:** *Ensure you have the latest up to date version of the handbook for your individual Display (C/E-Series) which can be accessed on-line at [www.raymarine.com](http://www.raymarine.com) look for the Manuals under Customer Support. Software upgrades may take place changing the operability of the software as described in this handbook.*

## Overview

Using your Sirius weather receiver to obtain the data, regularly updated forecasts and warnings with details of current and expected weather conditions can be seen on your display.

The weather application enables you to overlay historical, live and forecasted weather graphics over a world map on your C or E-Series display. It also provides forecasts and warnings in a text format.

## Setting up the application

Before you are able to use the weather application you will need to make sure that the following steps have been carried out:

- Your Sirius Weather Receiver has been installed and connected in accordance with the instructions contained in the Installation and Connection sections of this handbook.
- Your C or E-Series display is running a version of software that includes the weather application.

- You have obtained a Sirius ID number and activated the system as detailed in "System activation" on page 18 of this handbook.
- Your C or E-Series display has obtained a GPS fix on your boat's position.

With all of the above steps completed you now need to set up your system to show the required weather information. To do this you need to:

- Customize a page set.
- Configure your weather application.
- Specify the information displayed.

## Customize a page set

The weather application does not appear in a pre-configured page set. You need to set up a page set to include a weather application window.

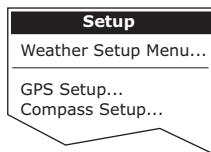
For full details of how to customize a page set refer to the relevant display handbook.

## Configure your weather application

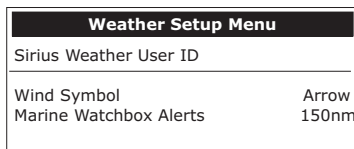
With an active window showing the weather application you can customize the configuration to suit your particular method of working. Although you will probably only need to do this the first time you use the weather application, you are able to make changes at any time you want to. Any changes are retained by the system even when powered Off.

### To configure your weather application:

1. Press **MENU**. The Set up dialog box appears.



2. Press trackpad **Up/Down** to highlight *Weather Setup Menu*.
3. Press trackpad **Right**. The Weather Setup Menu appears.



4. Press trackpad **Up/Down** to highlight *Wind Symbol*.
5. Press trackpad **Right**. The Wind Symbol options of barbs or arrows appear.
6. Press trackpad **Up/Down** to select Wind Symbol style.
7. Press trackpad **Up/Down** to highlight *Marine Watchbox Alerts*. (These are the automatic watchboxes).
8. Press trackpad **Right**. The Watchbox alert area options appear.  
The options are OFF, 50, 150, 300, 500 and All. The figures represent the range from your boat and are dependant on your system settings.
9. Press trackpad **Up/Down** to highlight the selected range.
10. Press **OK**. The Weather Setup Menu closes.

You now need to configure Marine Zones and Watchbox Graphic Display as Show/Hide.

The default for these is SHOW.

### To configure marine zones and watchboxes:

1. Press *Presentation*. The Marine Zones and Watchbox soft keys appear.
2. Toggle the *Watchbox* softkey to ON or OFF as required.
3. Toggle the *Marine Zones* soft key to HIDE or SHOW as required.
4. Press **OK** to accept your choice and return to the top level soft keys.

### Specify the information displayed

You need to specify the weather reports or graphics that are shown in the weather application using the Weather Setup Menu.

### To set up reports and graphics:

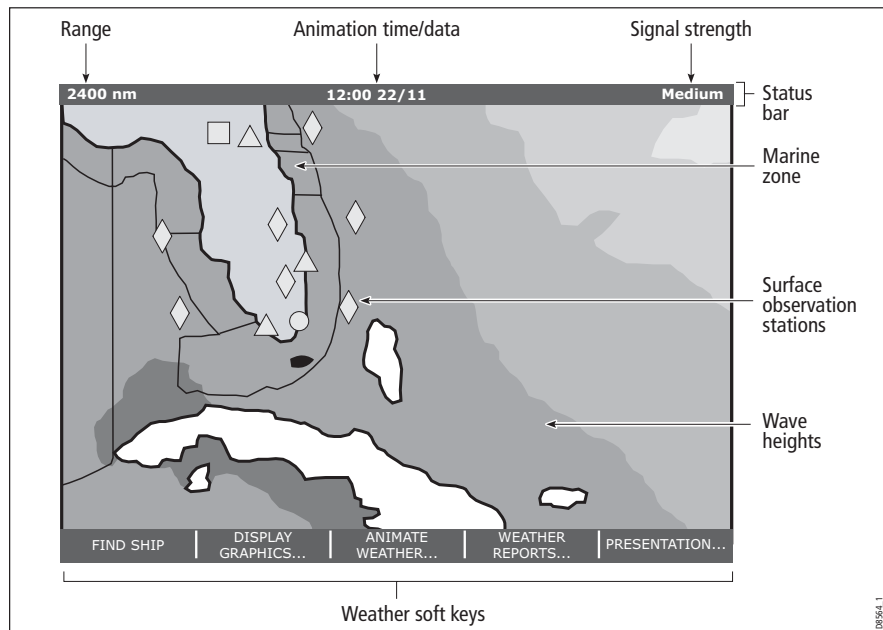
1. Open a weather application window.
2. Press *Display Graphics*. The Weather Graphics menu appears.

Weather Graphics	
NOWRad	ON
Storm Cast	OFF
Sea Surface Temp	OFF
Canadian Radar	OFF
Storm Tracks	OFF
Lightning	OFF
Surface Ob Stations	OFF
Cities	OFF
Wind	OFF
Waves	OFF
Surface Pressure	OFF

3. Press the trackpad **Up/Down** to highlight the required menu item.
4. Press the trackpad **Right** to select the item.
5. Press the trackpad **Up/Down** to toggle the item ON or OFF.
6. Press **OK** to accept the options.
7. Repeat Steps 1 through 6 until all required options are specified.

## The weather display

The main features of the weather display are:



## Moving around the weather map

When you open the weather application, a world map is shown. If your system has a valid GPS fix, the map is shown centered on your boat. As in the chart application, use the cursor to move around the map and the range button to zoom in and out. Remember that accuracy will be lost if you zoom out a long way. Zoom in until all the required detail is displayed. To re-center the map on your boat, press FIND SHIP.

## Placing waypoints

The waypoint button and softkeys operate as normal when you are using the weather application, but you will need to change the active window to a chart or radar application window to see any waypoints that you have placed.



## Weather options

This section details the available options in your weather application and covers:

- NOWRad.
- Storm cast.
- Surface Sea Temperature.
- Canadian radar.
- Storm tracks.
- Lightning.
- Surface observation stations.
- Cities.
- Wind.
- Waves.
- Surface pressure.

### NOWRad (Precipitation)

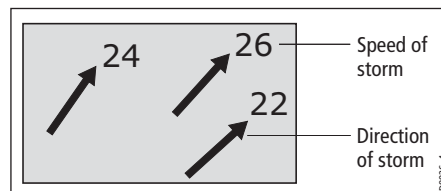


The NOWcasting of precipitation using Radars (NOWRad) option shows the type and level of precipitation as defined in the table below:

Color code	Precipitation type	Intensity
Light green	Rain	15 - 19 dBz
Medium green	Rain	20 - 29 dBz

Color code	Precipitation type	Intensity
Dark green	Rain	30 - 39 dBz
Yellow	Rain	40 - 44 dBz
Orange	Rain	45 - 49 dBz
Light red	Rain	50 - 54 dBz
Dark red	Rain	55 + dBz
Light blue	Snow	5 - 19 dBz
Dark blue	Snow	20 + dBz
Light pink	Mixed	5 - 19 dBz
Dark pink	Mixed	20 + dbz

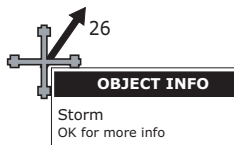
### Storm Cast



Storm Cast arrows indicate the direction and speed of a storm.

### To display storm details:

1. Place the cursor at the base of the storm cast arrow. The Object information dialog box appears.
2. Press *OK*. The Storm cast detail information box appears.



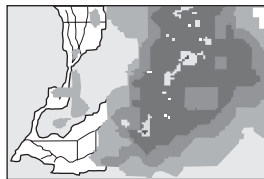
Storm cast	
Storm ID	VXNO
Echo Top	5.760NM
Direction	057°T
Speed	1.6kl
Time	08:40AM
Position	24°44'.700N/079°40'.440W
Attributes	Hail Confirmed

### Sea surface temperature (SST)



The SST can be shown as shading, varying from blue - the coldest temperature - through shades of green, yellow and orange to red - the warmest temperature.

### Canadian radar



Canadian radar shows the precipitation levels for Canada, but unlike NOWRad it does not show the precipitation type.

#### Color code

Transparent  
(nothing shown at very low precipitation levels)

Light green

Medium green

Dark green

Yellow

Orange

Light red

Dark red

#### Intensity in mm per hour

0.00 to 0.20 mm/hour

0.21 to 1.00 mm/hour

1.01 to 4.00 mm/hour

4.01 to 12.00 mm/hour

12.01 to 24.00 mm/hour

24.01 to 50.00 mm/hour

50.01 to 100 mm/hour

100.01 + mm/hour

## Storm track

You can use the STORM TRACK function to monitor significant storms in an area. These include:

- Tropical disturbances.
- Depressions.
- Storms and cyclones.
- Hurricanes.
- Typhoons and super typhoons.

The weather application shows:

- the track the storm has taken.
- its current and forecasted positions.
- the wind radii (current position only).
- wind direction.
- speed of travel.

There are 3 symbols used to represent storms:



Hurricane  
Category 1 - 5



Tropical storm



Tropical Depression

Each of these symbols can be displayed on-screen in 3 different colors to show its status:

- Grey - historical,
- Red - current.
- Orange - forecast.

## Tropical storm data

You can display tropical storm data for a selected storm. This data includes:

- Storm's name and type.
- Date and time.
- Position, direction and speed.
- Pressure and maximum wind speed and gusts.

## To display tropical storm data:



### OBJECT INFO

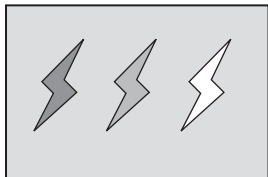
Hurricane Category 2  
OK for more info

1. Place the cursor over the storm symbol. The Object Information dialog box appears giving details of the storm type.
2. Press OK. The Tropical Storm Data box appears.

### Tropical Storm Data

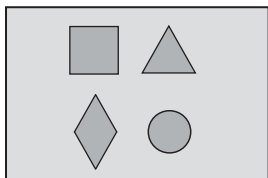
Storm name	EPSILON
Storm ID	AL292005
Storm Type	Hurricane Category 2
Direction	075oT
Speed	9.9kt
Max Wind Speed	64.9kt
Max gust Speed	80.1kt
Pressure	987mb
Date	12/03/2005
Time	3:00PM
Position	34°30'.000N/044°24'.000W

## Lightning



A lightning symbol is shown at each cloud-to-ground strike recorded within the last 5, 10 and 15 minutes. The most recent strikes are colored bright yellow with intermediate and older strikes recorded in darker shades of yellow. More recent strikes are overlaid over older ones.

## Surface observation stations

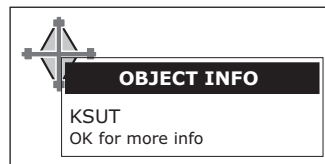


Current or historical weather data can be viewed at surface observation stations. These stations are represented according to type by a pink symbol as follows:

- Diamond - Buoy station
- Triangle - Coastal Marine Automated Network (C-MAN)
- Circle - Weather Service International (WSI).
- Square - National Weather Service (NWS).

Remember that not all data is available for all stations.

## To identify a station and display additional data:

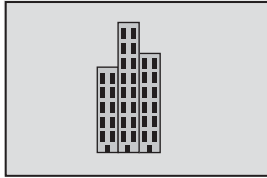


1. Place the cursor over the relevant surface observation station symbol. The Object Information dialog box appears.

2. Press OK. The Station Data information box appears.

Station Data	
Time	02:36PM
Wind speed	19.4kt
Wind Direction	003°t
Wave Height	13.1ft
Sea Temperature	50.0°F
Visibility	0.540nm

## Cities



The Cities options enables you to access details of city weather forecasts. Up to 3 forecasts are displayed for each city.

### To display City forecasts:



1. Place the cursor over the relevant city symbol. The Object Information dialog box appears showing the City name.
2. Press *OK*. The weather forecasts for the selected city are shown.

**Forecast for Summer Bay**

**Forecast for Monday**  
A mix of clouds and sun. High 22F.  
Winds NNE at 5 to 10 mph.

---

**Forecast for Monday night**  
Mostly cloudy skies. Low near 20F.  
Winds NW at 5 to 10 mph.

---

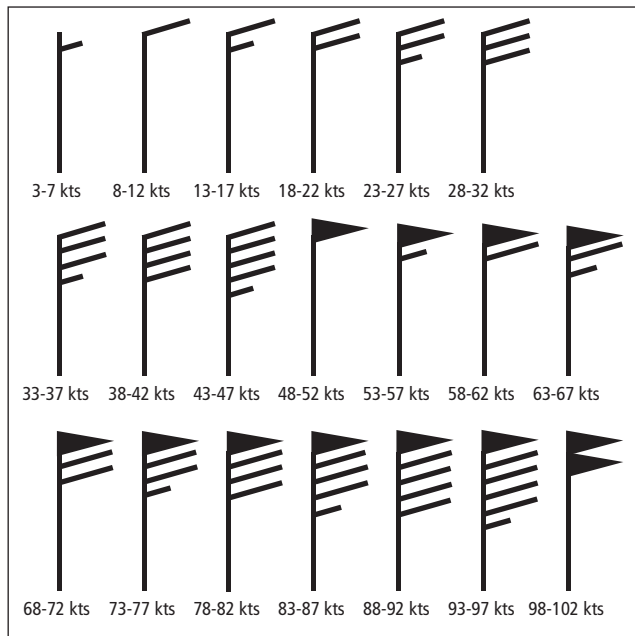
**Forecast for Tuesday**  
Sunshine along with some passing clouds.  
High near 25F. Winds NW at 5 to 10.

Station Report	
Station ID	KEYW
Station Name	Key West, FL
Station Type	METAR Automatic
Latitude	23°33'.000N
Longitude	081°45'.000W
Time	08:26AM
Date	21/12/2005
Air Temperature	66.4°F
Horizontal Visibility	13.53km
Vertical Visibility	--kh
Sea Level Pressure	-mb
3 Hour Pressure Change	-mb
Pressure Tendency	---
Wind Direction	036°T
Wind Speed	13.0kt
Peak Wind Speed	--kt
Gust Wind Speed	--kt
Water Temperature	--°F
Tidal Elevation	--ft
Wave Height	--ft
Wave Period	--h--m--s
Dominant Swell Direction	---°T
Dominant Swell Height	--ft
Dominant Swell period	--h--m--s
Lesser Swell Direction	---°T
Lesser Swell Height	--ft
Lesser Swell Period	--h--m--s

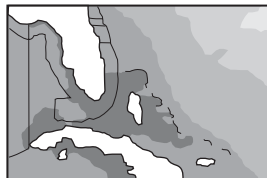
3. Press View Full Report. The full station report is displayed for the selected station.

## Wind

This option shows the current wind direction and strength and can be displayed as either an arrow or a wind barb. Wind arrows indicate speed - the larger the arrow, the greater (stronger) the wind speed. Wind barbs give a more precise indication of wind speed as shown on the illustration below:



## Waves

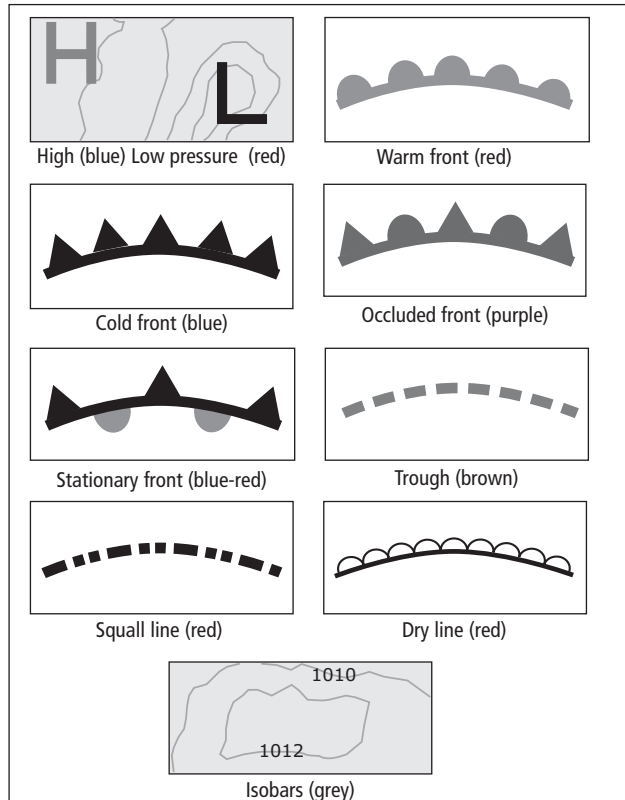


The waves option shows current wave height in up to 16 shades of color:

- Reds - Highest waves
- Greens - Intermediate waves.
- Blues - Lowest waves

## Surface pressure

Surface pressure can be shown using standard meteorological symbols:



## Viewing weather data at a specific location

You can show the following details for a particular location regardless of the product Show/Hide status

- Sea temperature.
- Wind speed and direction.
- Wave height.
- Precipitation type and intensity.

### To view weather data at a specific location:

1. Place the cursor in the required location.
2. Press OK. The Weather information dialog box appears.

Weather Info	
Zone description <b>North Atlantic Ocean between 31N and 67N latitude and between the East Coast North America and 35W longitude</b>	
Zone ID	XXX
Precipitation Intensity	<5dBz
Precipitation Type	None
Sea Surface temperature	-.oF
Wind Speed	20.0kt
Wind Direction	255°T (WSW)
Wave Height	-.ft

The dialog box also contains a description of the marine zone selected by the cursor's position.

## Animating weather graphics

Using the animated weather option you can view an animation from the current time for:

- Wind, waves or surface pressure.
- NOWRad (Weather radar history loop).

### To set up a weather animation:

1. Press *Animate Weather*. The animate weather softkeys appear.
2. Toggle the *Animate Type* soft key to the required option. This can be F'CAST or N'RAD.
3. Toggle the *Forecast* soft key to the required forecast option. This can be WIN, WAVE or PRES.
4. Toggle *Animate* to ON.

The time frame shown is detailed in the status bar. The weather radar history provides up to 8 images of data covering the previous 2 hours at 15 minute intervals.

If at anytime you want to stop the animation, press *PAUSE*.

When an animation is running the following points should be noted:

- Information cannot be displayed by moving the cursor over a symbol.
- Range and trackpad functions remain operable provided *PAUSE* has not been selected. However, using either of these controls will restart the animation.
- The animation will stop if any of the function buttons is pressed, e.g. **ACTIVE**.

## Viewing weather reports

The weather application can display the following reports for:

- Tropical statements
- Marine warnings.
- Marine zone forecasts.
- Marine watchbox reports.

Marine Warnings & Marine Zone Forecast can be specified at ships position or at cursor.

These reports are accessed using the *Weather reports* soft key. Each report type may contain several bulletins. You can scroll the window to view all of the data.

## Tropical statements

### To display tropical statements:

1. Press *Weather Reports*. The weather application softkeys appear.
2. Press *Tropical Statement*. The Tropical Statement dialog box appears.



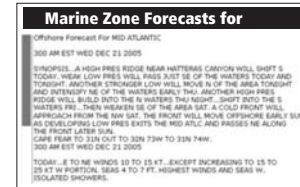
## Marine warnings

You can display a report detailing current marine warnings for US coastal or near shore areas.

### To display marine warnings:

1. Press *Weather Reports*. The weather application softkeys appear.
2. Press *Marine Warnings*.
3. Toggle *Forecast at* to required position - CURSOR or SHIP. The Marine Warnings dialog box appears.





## Marine zone forecasts

These forecasts cover:

- US coastal weather forecasts.
- US offshore forecasts.
- High seas forecasts.
- Great Lakes forecasts.
- Near Shore forecasts.
- Canadian coastal weather forecast.

The forecast and warnings shown will depend upon the area of the chart selected.

### To display marine zone forecasts:

1. Press *Weather Reports*. The weather application softkeys appear.
2. Press *Marine Zone Forecasts*. The marine zones forecasts dialog box appears.
3. Toggle *Forecast at* to required position - CURSOR or SHIP.

## Watchbox warnings

Watchbox warnings provide area specific information of tornados and thunderstorms. You can display a report of all current watchbox warnings.

These warnings show that a weather warning is in place for a specific area. This area is defined by the warning itself.

In addition to the weather report, watchbox warnings can be shown in 2 ways:

- Automatically generated alert on receipt by the system and shown as a pop-up.
- by displaying any active watchboxes as a polygon on the weather map.

### Automatic watchbox warning

With the watchbox option enabled, when a tornado, thunderstorm or similar weather system warning is received a warning is automatically generated and pops-up on screen.

You can scroll through the report using the trackpad or rotary control.

This pop-up will remain on screen until it is manually cleared.



Warning type and period for which warning is valid

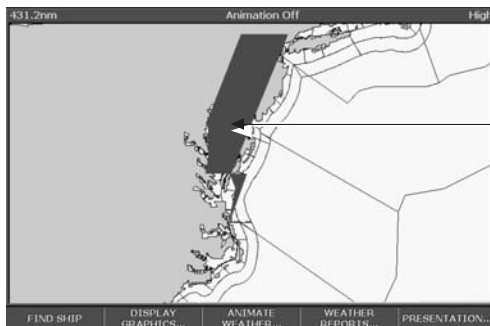
Watchbox report text

### To clear an automatic alert:

Press ACKNOWLEDGE. The alert is removed from the screen, but can be viewed manually later if required.

### Marine watchbox warning

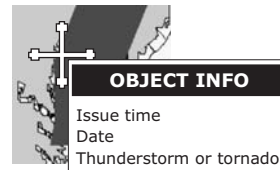
When set to SHOW, marine watchboxes highlight any region on a map that has a current weather alert as a red polygon.



Watchbox alert warning area

The area of the polygon is defined by the alert.

### To show watchbox data:



1. Place the cursor over the relevant polygon. The Object Information dialog box appears.

2. Press *View Warning* soft key. The Watchbox warning appears.

### Watchbox status

You can switch OFF marine watchbox alarms and set the watchbox status to Hide - see "Specify the information displayed" on page 28, but reports will continue to be added to and updated in the database.

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## Troubleshooting the weather application

Your weather application has been subjected to comprehensive test and quality assurance programs. However, if the application should develop a fault, please refer to the following section to identify the most likely cause and the corrective action required to restore normal operation. If you still have a problem after referring to the following section, contact your local dealer, national distributor or Raymarine Technical Services Department for further advice.

Problem	Probable cause
Boat symbol not displayed	No position fix
On Start-up, weather map stays in last view and does not re-draw.	No position fix
During use, weather map stays in last view and does not re-draw.	FIND SHIP not pressed
FIND SHIP soft key grayed out	No position fix.
Boat symbol drawn as a solid circle	No heading data or Course Over Ground (COG) available.

If weather data is not being received, check Status bar signal strength. Soft key operation, and application functionality continues as normal.

# Appendix A: Technical specifications

## SR100 Technical Specification

General	
Environmental:	
Waterproof	IPX-2
Operating range	-10° C to + 50°C
Storage range	-20° C to + 70°C
Humidity	up to 95% at 35°C non-condensing

Receiver	
Size	10¾" x 7½" x 2½" (273.3 x 187.2 x 61.7 mm)
Weight	2.2 lbs (1 kg)
Mounting	Four keyholed mounting tabs, screws
Power	Reverse polarity protected
Voltage	9 V to 32 V DC
Current	0.7 A at 9 V (2 A peak)
Fuse	2A (recommended)
Connectors	RJ-45 SeaTalk <sup>hs</sup> 3 pin Power 4 pin Audio (not used) SMB RF Antenna

Antenna	
Size	Φ 3½" x 4¼" (including mounting flange and gasket)
Weight	8 oz. (226 g)
Mounting	Three countersunk holes, screws
Connector	SMB RF

# SR50 Technical Specification

General	
Environmental:	
Waterproof	IPX-2
Operating range	-10° C to + 50°C
Storage range	-20° C to + 70°C
Humidity	up to 95% at 35°C non-condensing

Receiver	
Size	10¾" x 7½" x 2½" (273.3 x 187.2 x 61.7 mm)
Weight	2.2 lbs (1 kg)
Mounting	Four keyholed mounting tabs, screws
Power	Reverse polarity protected
Voltage	9 V to 32 V DC
Current	0.7 A at 9 V (2 A peak)
Fuse	2A (recommended)
Connectors	6 pin SeaTalk <sup>NG</sup> 3 pin Power 4 pin Audio SMB RF Antenna

Antenna	
Size	Φ 3½" x 4¼" (including mounting flange and gasket)
Weight	8 oz. (226 g)
Mounting	Three countersunk holes, screws
Connector	SMB RF

# Appendix B: List of Abbreviations

Abbreviation	Description
AWG	American Wire Gauge
CF	CompactFlash
C-MAN	Coastal Marine Automated Network
COG	Course Over Ground
DC	Direct current
EMC	Electromagnetic Compatibility
FCC	Federal Communications Commission
ft.	feet
IMO	International Maritime Organization
LED	Light Emitting Diode
m	meters
mm	millimeters
NWS	National Weather Service

°C	Degrees Centigrade
RF	Radio Frequency
SMB	Sub Miniature B
SOLAS	Safety of Life at Sea
SST	Surface Sea Temperature
USB	Universal Serial Bus
V	Volts
VHF	Very High Frequency
WSI	Weather Service International
TPI	Threads Per Inch



